VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a Minor, Municipal permit. The effluent limitations contained in this permit will maintain the Water Quality Standards (WQS) of 9 VAC 25-260. The discharge results from the operation of a sewage treatment plant serving the Town of Edinburg (SIC Code: 4952 - Sewerage Systems). This permit action consists of reissuing the permit with revisions to the permit, as needed, due to changes in applicable laws, guidance, and available technical information.

1. Facility Name and Address:
   Edinburg STP
   PO Box 85, Edinburg VA 22824
   Location: 114 North Whissen Street, Edinburg

2. Permit No. VA0020508; Expiration Date: December 31, 2011

3. Owner: Town of Edinburg
   Contact Name: Honorable Daniel Harshman
   Title: Mayor
   Telephone No: 540-984-8521

4. Description of Treatment Works: Edinburg STP receives sewage wastewater generated by town residents and businesses with the balance of the flow generated by commercial and industrial contributors. The treatment units are shown in the schematic included in the permit reissuance application.

   Total Number of Outfalls: Existing: 1; Proposed: 0
   Monthly Average Flow (DMR Data): 0.13 MGD
   Design Capacity: 0.175 MGD

5. Application Complete Date: July 7, 2011

   Permit Drafted By: Keith Showman Date: August 11, 2011
   Reviewed By: Kate Harrigan Date: August 18, 2011
   Dawn Jeffries Date: August 18, 2011

   Public Comment Period: _____ to _____

6. Receiving Stream Name: Stony Creek
   River Mile: 0.62
   Use Impairment: Yes
   Watershed Name: VAV-B49R – Stony Creek
   Basin/Subbasin: Potomac/Shenandoah
   Section/Class: 6/IV
   Special Standards: pH
   Tidal Waters: No

7. Operator License Requirements per 9 VAC 25-31-200.C: Class III

8. Reliability Class per 9 VAC 25-790: II

9. Permit Characterization:
   ☐ Private ☐ Federal ☐ State ☑ POTW ☐ PVOTW
   ☐ Possible Interstate Effect ☐ Interim Limits in Other Document (attach copy of CSO)

10. Discharge Location Description and Receiving Waters Information: **Appendix A**

11. Antidegradation Review & Comments per 9 VAC 25-260-30: Tier 1

    The State Water Control Board's Water Quality Standards (WQS) includes an antidegradation policy. All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the WQS. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

    The antidegradation review begins with a Tier determination. Stony Creek was previously determined to be Tier 2; however, because there was no proposed expansions for this existing discharge, antidegradation baselines were not calculated for any toxic parameter. Stony Creek in the vicinity of the discharge is determined to be a Tier 1 water at this reissuance. This determination is based on the fact that this facility discharges to a segment of the Stony Creek that is listed as not meeting the General Standard (Benthics) for aquatic life use. Antidegradation baselines are not calculated for Tier 1 waters.

    In accordance with current guidance, because the change in Tier determination was not due to DO, DO will continue to be evaluated on a Tier 2 basis. The DO antidegradation baselines of 7.2 mg/L for Stony Creek and 5.6 mg/L for the North Fork (N.F.) Shenandoah River established in 2007 have been maintained.

    If this permit action had included an expansion of the design capacity for this facility, then baselines would have been calculated for all toxic parameters as not more than 25% of the unused assimilative capacity of the criteria for the protection of aquatic life (acute and chronic) and not more than 10% for the protection of human health. The unused assimilative capacity is defined as the difference between existing water quality and the criterion for a specific pollutant.

12. Site Inspection: Performed by: Keith Showman Date: June 29, 2011

13. Effluent Screening and Effluent Limitations: **Appendix B**

14. Effluent toxicity testing requirements included per 9 VAC 25-31-220.D: ☑ Yes ☐ No **Appendix C**

15. Management of Sewage Sludge:
    Sludge is dried and hauled to the Shenandoah County Landfill for disposal in accordance with the Sludge Management Plan, which is re-approved at this reissuance.

16. Permit Changes and Bases for Special Conditions: **Appendix D**

17. Material Storage per 9 VAC 25-31-280.B.2:
    This permit requires that the facility's O&M Manual include information to address the management of wastes, fluids, and pollutants which may be present at the facility, to avoid unauthorized discharge of such materials.

18. Antibacksliding Review per 9 VAC 25-31-220.L:
    This permit complies with Antibacksliding provisions of the VPDES Permit Regulation.

19. Impaired Use Status Evaluation per 9 VAC 25-31-220.D:
    Stony Creek in the vicinity of Outfall 001 is listed as impaired for bacteria and not meeting the General Standard (Benthics) for aquatic life use. The facility was included in the Stony Creek Bacteria TMDL that was approved by the EPA on September 26, 2006. The facility was given a waste load allocation (WLA) of 3.05×10^{11} cfu/year for E. coli. Based on the facility's design flow of 0.175 MGD, the E. coli WLA corresponds to a concentration limit of 126 cfu/100 mL. No TMDL has been prepared or approved for the Benthics impairment for this segment of Stony Creek. The permit contains a re-opener condition that may allow the permit limits to be modified, in compliance with section 303(d)(4) of the Act once a TMDL is approved.

20. Regulation of Users per 9 VAC 25-31-280.B.9:
    N/A – This facility is owned by a municipality.

21. Storm Water Management per 9 VAC 25-31-120: Application Required? ☐ Yes ☑ No
    If "No," check one:
    - ☑ STPs: This facility does not have a design flow $\geq$ 1.0 MGD, nor is it required to have an approved POTW pretreatment program under 9 VAC 25-31-10 et seq.
    - ☐ Others: This facility's SIC Code(s) and activities do not fall within the categories for which a Storm Water Application submittal is required.

22. Compliance Schedule per 9 VAC 25-31-250:
    None required by this permit.

23. Variances/Alternative Limits or Conditions per 9 VAC 25-31-280.B, 100.J, 100.P, and 100 M:
    The permittee requested waivers from sampling and reporting Ammonia-N, Dissolved Oxygen (DO), Total Kjeldahl Nitrogen (TKN), Nitrate+Nitrite, Phosphorus, Oil & Grease, and Total Dissolved Solids (TDS) as part of the permit application. The waiver requests have been approved based on the justification provided by the permittee.

24. Financial Assurance Applicability per 9 VAC 25-650-30:
    N/A – This facility is owned by a municipality.

25. Virginia Environmental Excellence Program (VEEP) Evaluation per § 10.1-1187.1-7:
    At the time of this reissuance, is this facility considered by DEQ to be a participant in the Virginia Environmental Excellence Program in good standing at either the Exemplary Environmental Enterprise (E3) level or the Extraordinary Environmental Enterprise (E4) level? ☐ Yes ☑ No

26. Nutrient Trading Regulation per 9 VAC 25-820:
    General Permit Required: ☐ Yes ☑ No If Yes: Permit No.:

27. Threatened and Endangered (T&E) Species Screening per 9 VAC 25-260-20 B.8:
    Edinburg STP was listed on the 2011 VPDES Permit review request list; therefore the coordination form included in the Memorandum of Understanding was sent to the Virginia Department of Game and Inland Fisheries (DGIF) on August 3, 2011. T&E screening was performed using the Department of Conservation and Recreation (DCR) Natural Heritage website and the results were automatically emailed to DCR on August 3, 2011. According to the information currently in the Biotics files, Natural Heritage Resources have been documented within two miles of the indicated project boundaries.

Comments were received from DCR on August 29, 2011 are included in the permit processing file. These comments were considered in the drafting of the permit and were also forwarded to the permittee.

28. Public Notice Information per 9 VAC 25-31-280.B: All pertinent information is on file, and may be inspected and copied by contacting Keith A. Showman at: DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801, Telephone No. (540) 574-7836, keith.showman@deq.virginia.gov.

    Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing if public response is significant. Requests for public hearings shall state the reason why a hearing is requested, the nature of the issues proposed to be raised in the public hearing and a brief explanation of how the requester's interests would be directly and adversely affected by the proposed permit action. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given.

29. Historical Record:

EVENT	DATE
Facility upgraded to 0.175 MGD	1988
VPDES Permit modified to incorporate a pretreatment program	December 4, 2005

APPENDIX A

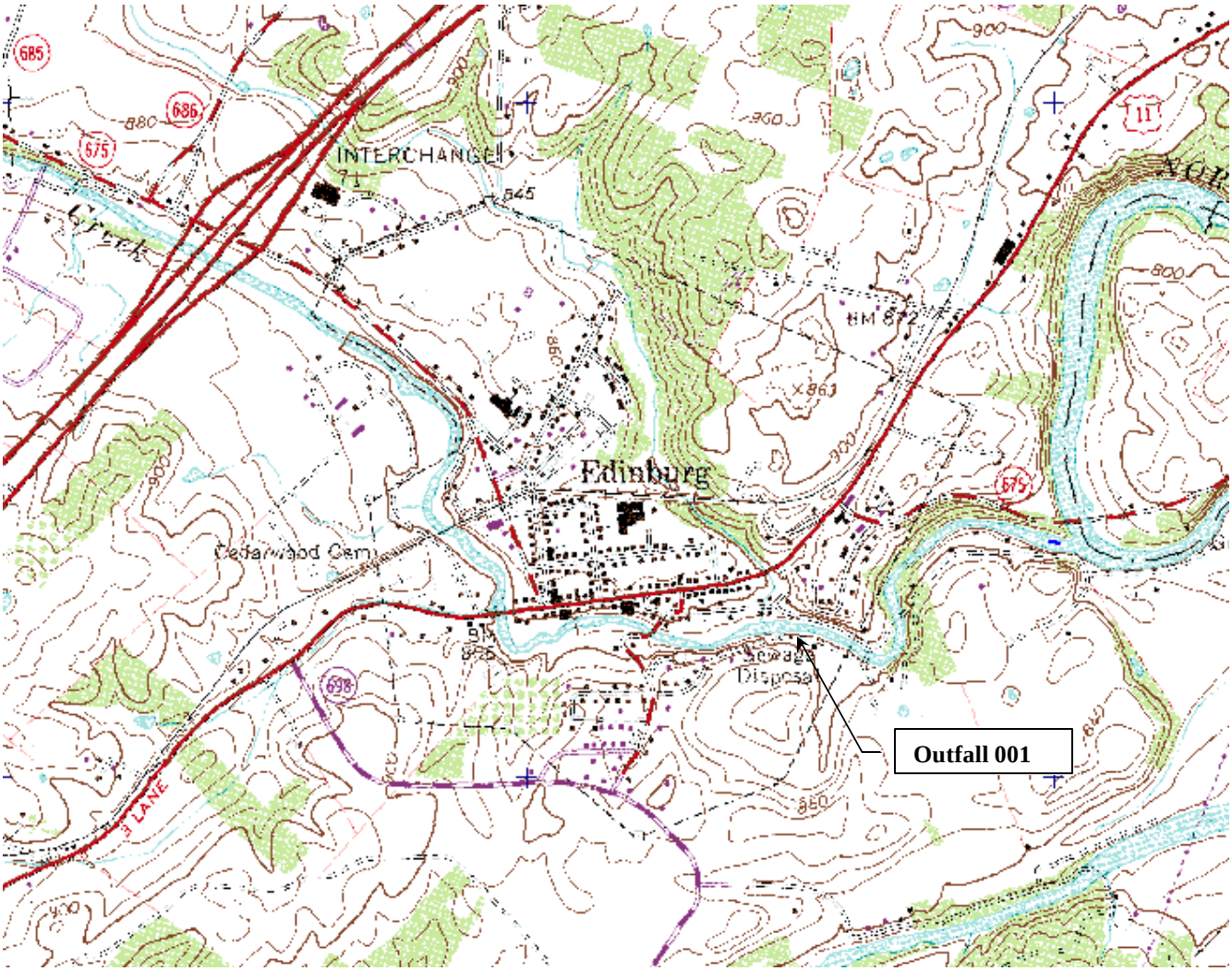
DISCHARGE LOCATION DESCRIPTION AND RECEIVING WATERS INFORMATION

Edinburg STP discharges to Stony Creek in Shenandoah County. The location of Outfall 001 is shown on the topographical map below.

Relevant points of interest within the watershed and in the vicinity of the discharge are shown on the enclosed Water Quality Assessment TMDL Review and corresponding map.

A Flow Frequency Determination for Meadow Creek at the discharge point was provided by memo dated July 18, 2011, and is presented in this appendix.

A Mixing zone analysis was conducted at the point of discharge per DEQ's mixing program (MIX.EXE) and the results are presented in this appendix.



WATER QUALITY ASSESSMENTS REVIEW
POTOMAC-SHENANDOAH RIVER BASIN
7/18/2011

IMPAIRED SEGMENTS

SEGMENT ID	STREAM	SEGMENT START	SEGMENT END	SEGMENT LENGTH	PARAMETER
B45R-04-BAC	North Fork Shenandoah River	92.61	60.75	31.86	Fecal Coliform
B49R-01-BAC	Stony Creek	17.04	0.00	17.04	Fecal Coliform
B49R-01-BEN	Stony Creek	5.76	0.00	5.76	Benthic
B50R-02-BAC	Narrow Passage Creek	10.75	0.00	10.75	Fecal Coliform, E-coli

PERMITS

PERMIT	FACILITY	STREAM	RIVER MILE	LAT	LONG	WBID
VA0020508	**Edinburg STP**	**Stony Creek**	**0.62**	**384913**	**0783329**	**VAV-B49R**
VA0052817	Woodstock WTP	N.F. Shenandoah River	50.01	385145	0783030	VAV-B50R
VA0077402	George's Chicken LLC	Stony Creek	5.65	385134	0783715	VAV-B49R
VA0092550	Dorothy's Inn	NF Shenandoah River	54.94	385037	0783207	VAV-B50R
VA0083054	Bowman Apple Products - Mt Jackson	N.F. Shenandoah River	68.46	384533	0783630	VAV-B48R
VA0088846	Valley Wood Products STP	Narrow Passage Creek	0.57	385045	0783215	VAV-B50R
VA0090328	North Fork Regional WWTP	N.F. Shenandoah River	57.65	384935	0783201	VAV-B50R
VA0090999	Little Apple Properties Inc	N.F. Shenandoah River U.T	0.94	384540	0783750	VAV-B48R
VA0090271	Sheetz Travel Center # 701	N.F. Shenandoah River UT	0	384538	783754	VAV-B48R
VA0091791	Edinburg WTP	Stony Creek UT	0.25	384929	0783344	VAV-B49R

MONITORING STATIONS

STREAM	NAME	RIVER MILE	RECORD	LAT	LONG
N.F. Shenandoah River	1BNFS054.80	54.75	32988.00	385040	783157
Stony Creek	1BSTY003.09	3.09	1984.00	384955	783524
Stony Creek	1BSTY004.24	4.24	1984.00	385032	783607
Stony Creek	1BSTY005.64	5.64		385125	783702
Stony Creek	1BSTY006.73	6.73	1984.00	385211	783753
N.F. Shenandoah River	1BNFS043.06	43.06	7/1/99	385239	0782802
N.F. Shenandoah River	1BNFS054.75	54.75	08/10/88	385041	0783154
N.F. Shenandoah River	1BNFS066.50	66.5	6/98	384656	0783602
Narrow Passage Creek	1BNPC000.02	0.02	07/01/91	385046	0783146
Stony Creek	1BSTY001.22	1.22	04/26/73	384915	0783402
Stony Creek	1BSTY005.85	5.85	07/01/91	385136	0783716
Stony Creek	1BSTY003.84	3.84	5/11/01	385024	783552
N.F. Shenandoah River	1BNFS062.18	62.18	7/2001	384831	-783358
N.F. Shenandoah River	1BNFS048.74	48.74	3/24/03	385124	782901

PUBLIC WATER SUPPLY INTAKES

OWNER	STREAM	RIVER MILE
WOODSTOCK, TOWN OF	NORTH FORK SHENANDOAH RIVER	9.98

WATER QUALITY MANAGEMENT PLANNING REGULATION

Is this discharge addressed in the WQMP regulation? **No**

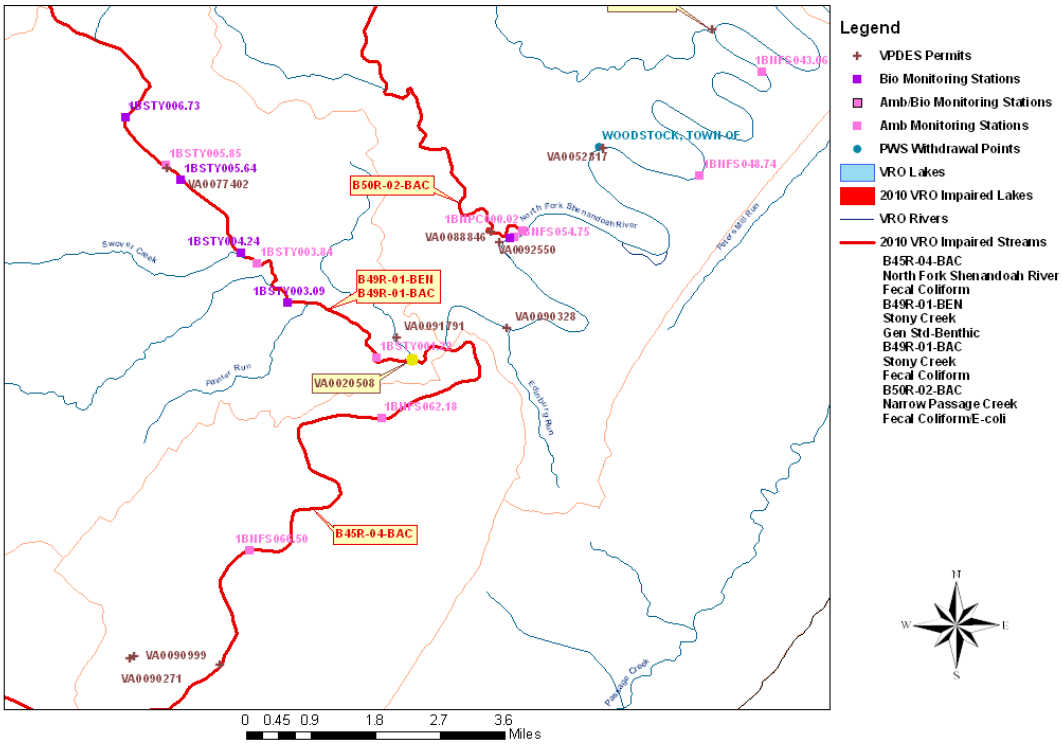
If Yes, what effluent limitations or restrictions does the WQMP regulation impose on this discharge?

PARAMETER	ALLOCATION

WATERSHED NAME

VAV-B49R Stony Creek

Edinburg STP - Water Quality Assessments Review
July 18, 2011



MEMORANDUM
DEPARTMENT OF ENVIRONMENTAL QUALITY
VALLEY REGIONAL OFFICE

4411 Early Road – P.O. Box 3000 Harrisonburg, VA 22801

SUBJECT: Flow Frequency Determination
Edinburg STP – VPDES Permit No. VA0020508, Shenandoah County

TO: Permit Processing File

FROM: Keith Showman

DATE: July 18, 2011

This memo supersedes Eric Aschenbach's flow frequency determination dated July 27, 2006. The subject facility discharges to Stony Creek at Edinburg, Virginia. Stream flow frequencies are required at this site for use by the permit writer in developing effluent limitations for the VPDES permit reissuance.

The USGS conducted several flow measurements on Stony Creek from 1968 to 1969. The measurements were made at the U.S. Route 11 bridge, approximately 0.5 miles upstream of the discharge point. The measurements were correlated with the same-day daily mean values from two continuous-record gages on the North Fork Shenandoah River: one at Mount Jackson, VA (#01633000) and the other at Strasburg, VA (#01634000). The data for the measurement site was plotted separately against each reference gage using logarithmic graphs. A best-fit line (and equation) for the data was established on each graph. The current flow frequencies for the entire period of record for each reference gage were plugged into the respective equation for the regression line, and two sets of flow frequencies were calculated for the measurement site. The final flow frequencies for the measurement site were determined by taking the average of the calculated values, and were then projected to the discharge point using proportional drainage areas. The flow frequencies are presented below:

North Fork Shenandoah River at Mount Jackson, VA (#01633000):

Drainage Area = 508 mi^2

1Q30 =	5.6 cfs	High Flow 1Q10 =	44 cfs
1Q10 =	11 cfs	High Flow 7Q10 =	50 cfs
7Q10 =	14 cfs	High Flow 30Q10 =	69 cfs
30Q10 =	20 cfs	HM =	102 cfs
30Q5 =	27 cfs		

North Fork Shenandoah River at Strasburg, VA (#01634000):

Drainage Area = 770 mi^2

1Q30 =	45 cfs	High Flow 1Q10 =	97 cfs
1Q10 =	55 cfs	High Flow 7Q10 =	111 cfs
7Q10 =	65 cfs	High Flow 30Q10 =	145 cfs
30Q10 =	75 cfs	HM =	237 cfs
30Q5 =	86 cfs		

Stony Creek measurement site at U.S. Highway 11, at Edinburg, VA (#01633540):

Drainage Area = 108 mi^2

1Q30 =	7.58 cfs	High Flow 1Q10 =	18.4 cfs
1Q10 =	9.80 cfs	High Flow 7Q10 =	20.2 cfs
7Q10 =	11.2 cfs	High Flow 30Q10 =	24.7 cfs
30Q10 =	13.2 cfs	HM =	33.6 cfs
30Q5 =	15.2 cfs		

Stony Creek at discharge point:

Drainage Area = 112.7 mi^2

1Q30 =	5.11 MGD	High Flow 1Q10 =	12.4 MGD
1Q10 =	6.61 MGD	High Flow 7Q10 =	13.6 MGD
7Q10 =	7.55 MGD	High Flow 30Q10 =	16.6 MGD
30Q10 =	8.90 MGD	HM =	22.7 MGD
30Q5 =	10.2 MGD		

The analysis assumes that there are no discharges, withdrawals, or springs located between the measurement site and the discharge point.

The high flow months are January through May.

REVIEWER: DMJ
DATE: 7/18/11

Mixing Zone Predictions

Annual

Effluent Flow = 0.175 MGD
Stream 7Q10 = 7.55 MGD
Stream 30Q10 = 8.90 MGD
Stream 1Q10 = 6.61 MGD
Stream slope = 0.004 ft/ft
Stream width = 30 ft
Bottom scale = 3
Channel scale = 1

Mixing Zone Predictions @ 7Q10

Depth = .6426 ft
Length = 1208.08 ft
Velocity = .6203 ft/sec
Residence Time = .0225 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 7Q10 may be used.

Mixing Zone Predictions @ 30Q10

Depth = .7088 ft
Length = 1110.24 ft
Velocity = .6605 ft/sec
Residence Time = .0195 days

Recommendation: A complete mix assumption is appropriate for this situation and the entire 30Q10 may be used.

Mixing Zone Predictions @ 1Q10

Depth = .5937 ft
Length = 1293.08 ft
Velocity = .5897 ft/sec
Residence Time = .6091 hours

Recommendation: A complete mix assumption is appropriate for this situation and the entire 1Q10 may be used.

Virginia DEQ Mixing Zone Analysis Version 2.1

APPENDIX B

EFFLUENT SCREENING AND EFFLUENT LIMITATIONS

EFFLUENT LIMITATIONS

A comparison of technology and water quality-based limits was performed, and the most stringent limits were selected. The selected limits are summarized in the table below.

Outfall 001 **Final Limits** **Design Flow: 0.175 MGD**

PARAMETER	BASIS FOR LIMITS	EFFLUENT LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Avg.		Maximum		Frequency	Sample
Flow	4	NL		NL		Continuous	TIRE
---	---	Monthly Avg.		Weekly Avg.		---	---
BOD_5	1,5	30 mg/L	20 kg/d	45 mg/L	30 kg/d	3 Days/Week	8 HC
TSS	1	30 mg/L	20 kg/d	45 mg/L	30 kg/d	1/Month	8 HC
Effluent Chlorine (TRC)* (mg/L)	3	0.36		0.44		3/Day at 4 Hr Intervals	Grab
E. coli* (geometric mean) (N/100 mL)	3,6	126		NA		4/Month 10 am to 4 pm	Grab
E. coli** (geometric mean) (N/100 mL)	3,6	126		NA		3 Days/Week 10 am to 4 pm	Grab
Chlordane (µg/L)	2	NL		NL		1/3 Months	Grab
---	---	Minimum		Maximum		---	---
pH (S.U.)	3	6.5		9.5		1/Day	Grab
Contact Chlorine (TRC)* (mg/L)	2,3	1.0		NA		3/Day at 4 Hr Intervals	Grab

NL = No Limitation, monitoring required
NA = Not Applicable
TIRE = Totalizing, Indicating, and Recording equipment
8 HC = 8 Hour composite sample
3 Days/Week = 3 samples taken during the calendar week, no less than 48 hours apart
4/Month = 4 samples taken weekly during the calendar month
1/3 Months = Quarterly sampling with the results submitted with the DMR due January 10th, April 10th, July 10th and October 10th of each year

* = Applicable only if chlorination is used for disinfection
** = Applicable if an alternative to chlorination is used for disinfection.

Bases for Effluent Limitations

1. Federal Effluent Requirements (Secondary Treatment Regulation - 40CFR133)
2. Best Professional Judgment (BPJ)
3. Water Quality Standards
4. VPDES Permit Regulation
5. Regional Stream Model (v 4.11) simulation
6. Stony Creek Bacteria TMDL

LIMITING FACTORS – OVERVIEW:
The following potential limiting factors have been considered in developing this permit and fact sheet:

Water Quality Management Plan Regulation (9 VAC 25-720)	
A. TMDL limits	**E. coli**
B. Non-TMDL WLAs	**None**
C. CBP (TN & TP) WLAs	**None**
Federal Effluent Guidelines	**BOD_5, TSS, pH**
BPJ/Agency Guidance limits	**TRC (contact), Chlordane**
Water Quality-based Limits - numeric	**BOD_5, DO, TKN, Ammonia-N, TRC (effluent), E. coli, pH**
Water Quality-based Limits - narrative	**None**
Toxics Management Plan (TMP)	**Not applicable**
Storm Water Limits	**Not applicable**

EVALUATION OF THE EFFLUENT – CONVENTIONAL POLLUTANTS
At this reissuance the discharge for this facility was remodeled using the Regional Stream Model (v 4.11) because new stream flow and effluent temperature information were available. DO antidegradation baselines of 7.2 mg/L for Stony Creek and 5.6 mg/L for the North Fork Shenandoah River were previously established in 2007 were previously established.

The Regional Stream Model demonstrated that the following limits shown below maintain the DO baselines:

$CBOD_5$ = 25 mg/L
TKN = 20 mg/L
DO = 0 mg/L

Because a $cBOD_5$ concentration of 25 mg/L is equivalent to a BOD_5 concentration of 30 mg/L, a BOD_5 permit limit of 30 mg/L has been carried forward from the previous permit.

Based on the model, it was determined that no TKN limits were needed because a secondary sewage treatment plant is not expected to discharge effluent with TKN concentrations greater than 20 mg/L.

No DO limit was determined to be necessary during the previous permit or at this reissuance.

The modeling information is maintained in the DEQ-VRO receiving stream DO model files.

The TSS limits reflect secondary treatment limits and have been carried forward from the previous permit.

The pH limits reflect the current WQS for pH in the receiving stream and have been carried forward from the previous permit.

EVALUATION OF THE EFFLUENT – DISINFECTION
The Stony Creek Bacteria TMDL includes an E. coli WLA of 305×10^{11} cfu/yr for this facility. Based on the facility's design flow of 0.175 MGD, the WLA corresponds to an E. coli concentration limit of 126 cfu/100 mL. Because chlorination is currently utilized for disinfection, E. coli monitoring is required 4/Month to demonstrate compliance with the concentration limit. In addition to the E. coli monitoring and limit the facility must also meet minimum TRC limits. When an alternative to chlorination is utilized, E. coli monitoring is required 3 Days/Week.

EVALUATION OF THE EFFLUENT – NUTRIENTS

The design average flow for the facility as it existed on or before July 1, 2005 is 0.175 MGD. The installed treatment technology in place on or before July 1, 2005, does not take into consideration the need for nutrient removal.

The "permitted design capacity" or "permitted capacity" in terms of annual mass load of total nitrogen or total phosphorus discharged by this non-significant discharger is assumed to be that achieved at the current design flow using the currently installed technology.

Pursuant to section 62.1-44.19:12 - :19 of the law, Total Nitrogen (TN) and Total Phosphorus (TP) baselines are being established for this facility to represent nutrient discharge allowances as of July 1, 2005. Once established, these baselines will be used as a limiting factor should the facility ever expand or have a significant increase in effluent TN or TP concentrations. For municipal facilities, the baselines are based on the permitted design capacity of the facility. The permitted design capacity is defined as

Total N or P (lb/yr) = concentration (mg/L) x design flow (mgd) x 8.3438 x 365 (days/yr)

where

Design flow – as of July 1, 2005, the approved flow was 0.175 MGD
Concentration – the treatment provided as of July 1, 2005 was TN = 18.7 mg/L and TP = 2.5 mg/L
(assumed concentrations based on secondary treatment facility)

TN = 18.7 mg/l x 0.175 mgd x 8.3438 x 365 days/yr = 9,966 lb/yr
TP = 2.5 mg/l x 0.175 mgd x 8.3438 x 365 days/yr = 1,332 lb/yr

EVALUATION OF THE EFFLUENT – TOXIC POLLUTANTS

Data Input for WQS.WLA Spreadsheet

Stream: Water quality data for the receiving stream was obtained from Ambient Monitoring Station No. 1BSTY001.22 on Stony Creek at the Rt. 11 bridge in Edinburg (see Table 1 below). A Flow Frequency Determination for the receiving stream was generated July 18, 2011, and is included in Appendix A.

Stream Information	
90%-tile Annual Temp (°C) = 22.0	90%-tile pH (SU) = 9.0
Mean Hardness (mg/L) = 143.0	10%-tile pH (SU) = 7.6

Discharge: The pH and temperature values were obtained from the monthly Discharge Monitoring Reports (DMRs) submitted by the facility. Because no site specific effluent data was available for hardness, the effluent value has been carried forward from the previous permit per BPJ (see Table 2 below).

Effluent Information	
90%-tile Annual Temp (°C) = 19.9	90%-tile pH (SU) = 7.5
Mean Hardness (mg/L) = 243	10%-tile pH (SU) = 6.9

WQC and WLAs were calculated for the WQS parameters for which data are available. Those WQC and WLAs are presented in this appendix. Current agency guidance recommends the evaluation of toxic pollutant limits for TRC and Ammonia-N based on default effluent concentrations of 20 mg/L and 9 mg/L, respectively. The effluent data were analyzed per the protocol for evaluation of effluent toxic pollutants included in this appendix with the following results:

- Ammonia-N: No limits were determined to be necessary for Ammonia-N.
- TRC: Limits identical to those in the previous permit were determined to be necessary.
- Chlordane: Monitoring for Chlordane was performed by the permittee. The data were inconclusive to establish a limit or determine that no further monitoring was necessary; therefore, based on BPJ, monitoring for Chlordane at a frequency of 1/3 Months has been included at this reissuance. No limits have been included; however, the permit contains a re-opener condition that may allow permit limits to be included if necessary based on the monitoring.
- Additional monitoring data is needed for a number of pollutants due to the lack of effluent quality data. The permittee must monitor the effluent at outfall 001 for the substances noted in Attachment A of the permit once after the start of the third year from the permit's effective date.

WQS-WLA Spreadsheet: Input

WATER QUALITY CRITERIA / WASTE LOAD ALLOCATION ANALYSIS

Facility Name: Edinburg STP
Receiving Stream: Stony Creek
Permit No.: VA0020508
Date: 8/10/2011
Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information			Stream Flows			Mixing Information			Effluent Information		
Mean Hardness (as CaCO3) =	143	mg/L	1Q10 (Annual) =	6.61	MGD	Annual	- 1Q10 Flow =	100 %	Mean Hardness (as CaCO3) =	243	mg/L
90% Temperature (Annual) =	22.0	deg C	7Q10 (Annual) =	7.55	MGD		- 7Q10 Flow =	100 %	90% Temp (Annual) =	19.9	deg C
90% Temperature (Wet season) =		deg C	30Q10 (Annual) =	8.9	MGD		- 30Q10 Flow =	100 %	90% Temp (Wet season) =		deg C
90% Maximum pH =	9.0	SU	1Q10 (Wet season) =		MGD	Wet Season	- 1Q10 Flow =	%	90% Maximum pH =	7.5	SU
10% Maximum pH =	7.6	SU	30Q10 (Wet season) =		MGD		- 30Q10 Flow =	%	10% Maximum pH =	6.9	SU
Tier Designation =	1		30Q5 =	10.2	MGD				Current Discharge Flow =	0.175	MGD
Public Water Supply (PWS) Y/N? =	N		Harmonic Mean =	22.7	MGD				Discharge Flow for Limit Analysis =	0.175	MGD
V(alley) or P(iedmont)? =	V										
Trout Present Y/N? =	N										
Early Life Stages Present Y/N? =	Y										

Footnotes:

1. All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise.
2. All flow values are expressed as Million Gallons per Day (MGD).
3. Discharge volumes are highest monthly average or 2C maximum for Industries and design flows for Municipals.
4. Hardness expressed as mg/l CaCO3. Standards calculated using Hardness values in the range of 25-400 mg/l CaCO3.
5. "Public Water Supply" protects for fish & water consumption. "Other Surface Waters" protects for fish consumption only.
6. Carcinogen "Y" indicates carcinogenic parameter.
7. Ammonia WQSs selected from separate tables, based on pH and temperature.
8. Metals measured as Dissolved, unless specified otherwise.
9. WLA = Waste Load Allocation (based on standards).
10. WLA = Waste Load Allocation (based on standards).
11. WLAs are based on mass balances (less background, if data exist).
12. Acute - 1 hour avg. concentration not to be exceeded more than 1/3 years.
13. Chronic - 4 day avg. concentration (30 day avg. for Ammonia) not to be exceeded more than 1/3 years.
14. Mass balances employ 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens, and Harmonic Mean for Carcinogens. Actual flows employed are a function of the mixing analysis and may be less than the actual flows.
15. Effluent Limitations are calculated elsewhere using the minimum WLA and EPA's statistical approach (Technical Support Document).

WQS-WLA Spreadsheet: Output

~~Facility Name:~~ Edinburg STP
~~Receiving Stream:~~ Stony Creek
Permit No.: VA0020508
~~Date:~~ 8/10/2011

WATER QUALITY CRITERIA
0.175 MGD Discharge Flow - Mix per "Mixer"

NON-ANTIDEGRADATION WASTE LOAD ALLOCATIONS
0.175 MGD Discharge - Mix per "Mixer"

Toxic Parameter and Form	Carcinogen?	Aquatic Protection Acute	Aquatic Protection Chronic	Human Health Public Water Supplies	Human Health Other Surface Waters	NAD WLA Aquatic Protection Acute	NAD WLA Aquatic Protection Chronic	NAD WLA Human Health
Ammonia-N (Annual)	N	2.0E+00 mg/L	4.1E-01 mg/L	None	None	7.9E+01 mg/L	2.1E+01 mg/L	N/A
Chlordane	Y	2.4E+00	4.3E-03	8.0E-03	8.1E-03	9.3E+01	1.9E-01	1.1E+00
Chlorine, Total Residual	N	1.9E-02 mg/L	1.1E-02 mg/L	None	None	7.4E-01 mg/L	4.9E-01 mg/L	N/A

STAT.EXE Results

Ammonia-N (Annual)

Chronic averaging period = 30
WLAa = 79
WLAc = 21
Q.L. = 0.2
# samples/mo. = 12
# samples/wk. = 3

Summary of Statistics:
observations = 1
Expected Value = 9
Variance = 29.16
C.V. = 0.6
97th percentile daily values = 21.9007
97th percentile 4 day average = 14.9741
97th percentile 30 day average= 10.8544
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are: 9

Total Residual Chlorine

Chronic averaging period = 4
WLAa = 0.74
WLAc = 0.49
Q.L. = 0.1
# samples/mo. = 30
# samples/wk. = 7

Summary of Statistics:
observations = 1
Expected Value = 20
Variance = 144
C.V. = 0.6
97th percentile daily values = 48.6683
97th percentile 4 day average = 33.2758
97th percentile 30 day average= 24.1210
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity
Maximum Daily Limit = 0.716661644186083
Average Weekly Limit = 0.437670430907199
Average Monthly Limit = 0.355192678190831

The data are: 20

PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS

Toxic pollutants were evaluated in accordance with OWP Guidance Memo No. 00-2011. Acute and Chronic WLAs (WLA_a and WLA_c) were analyzed according to the protocol below using a statistical approach (STAT.exe) to determine the necessity and magnitude of limits. Human Health WLAs (WLA_{hh}) were analyzed according to the same protocol through a simple comparison with the effluent data. If the WLA_{hh} exceeded the effluent datum or data mean, no limits were required. If the effluent datum or data mean exceeded the WLA_{hh}, the WLA_{hh} was imposed as the limit.

Since there are no data available for any toxic pollutants immediately upstream of this discharge, all upstream (background) pollutant concentrations are assumed to be "0".

The steps used in evaluating the effluent data are as follows:

A. If all data are reported as "below detection" or < the required Quantification Level (QL), and at least one detection level is = the required QL, then the pollutant is considered to be not significantly present in the discharge and no further monitoring is required.

B. If all data are reported as "below detection", and all detection levels are > the required QL, then an evaluation is performed in which the pollutant is assumed present at the lowest reported detection level.

   B.1. If the evaluation indicates that no limits are needed, then the existing data set is adequate and no further monitoring is required.

   B.2. If the evaluation indicates that limits are needed, then the existing data set is inadequate to make a determination and additional monitoring is required.

C. If any data value is reported as detectable at or above the required QL, then the data are adequate to determine whether effluent limits are needed.

   C.1. If the evaluation indicates that no limits are needed, then no further monitoring is required.

   C.2. If the evaluation indicates that limits are needed, then the limits and associated requirements are specified in the draft permit.

   C.3. (Exception for Metals data only) If the evaluation indicates that limits are needed, but the data are reported as a form other than "Dissolved" (except for Selenium), then the existing data set is inadequate to make a determination and additional monitoring is required.

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
METALS					
Antimony, dissolved	7440-36-0	0.2	Previously evaluated, no further monitoring required.		
Arsenic, dissolved	7440-38-2	1.0	Previously evaluated, no further monitoring required.		
Cadmium, dissolved	7440-43-9	0.3	Previously evaluated, no further monitoring required.		
Chromium III, dissolved	16065-83-1	0.5	Previously evaluated, no further monitoring required.		
Chromium VI, dissolved	18540-29-9	0.5	Previously evaluated, no further monitoring required.		
Copper, dissolved	7440-50-8	0.5	Previously evaluated, no further monitoring required.		
Lead, dissolved	7439-92-1	0.5	Previously evaluated, no further monitoring required.		
Mercury, dissolved	7439-97-6	1.0	Previously evaluated, no further monitoring required.		
Nickel, dissolved	7440-02-0	0.5	Previously evaluated, no further monitoring required.		
Selenium, total recoverable	7782-49-2	2.0	Previously evaluated, no further monitoring required.		
Silver, dissolved	7440-22-4	0.2	Previously evaluated, no further monitoring required.		
Thallium, dissolved	7440-28-0	---	Previously evaluated, no further monitoring required.		
Zinc, dissolved	7440-66-6	2.0	Previously evaluated, no further monitoring required.		
PESTICIDES/PCBS					
Aldrin [C]	309-00-2	0.05	Previously evaluated, no further monitoring required.		
Chlordane [C]	57-74-9	0.2	0.5, <0.2	b	B.2
Chlorpyrifos	2921-88-2	(5)	Previously evaluated, no further monitoring required.		
DDD [C]	72-54-8	0.1	Previously evaluated, no further monitoring required.		
DDE [C]	72-55-9	0.1	Previously evaluated, no further monitoring required.		
DDT [C]	50-29-3	0.1	Previously evaluated, no further monitoring required.		
Demeton	8065-48-3	---	Previously evaluated, no further monitoring required.		
Diazinon	333-41-5	---	**NEW REQUIREMENT. Needs to be sampled.**	---	---
Dieldrin [C]	60-57-1	0.1	Previously evaluated, no further monitoring required.		
Alpha-Endosulfan	959-98-8	0.1	Previously evaluated, no further monitoring required.		
Beta-Endosulfan	33213-65-9	0.1	Previously evaluated, no further monitoring required.		
Alpha-Endosulfan + Beta-Endosulfan		---	Previously evaluated, no further monitoring required.		
Endosulfan Sulfate	1031-07-8	0.1	Previously evaluated, no further monitoring required.		
Endrin	72-20-8	0.1	Previously evaluated, no further monitoring required.		
Endrin Aldehyde	7421-93-4	---	Previously evaluated, no further monitoring required.		
Guthion	86-50-0	---	Previously evaluated, no further monitoring required.		
Heptachlor [C]	76-44-8	0.05	Previously evaluated, no further monitoring required.		
Heptachlor Epoxide [C]	1024-57-3	---	Previously evaluated, no further monitoring required.		
Hexachlorocyclohexane Alpha-BHC [C]	319-84-6	---	Previously evaluated, no further monitoring required.		
Hexachlorocyclohexane Beta-BHC [C]	319-85-7	---	Previously evaluated, no further monitoring required.		
Hexachlorocyclohexane Gamma-BHC (synonym = Lindane)	58-89-9	---	Previously evaluated, no further monitoring required.		
Kepone	143-50-0	---	Previously evaluated, no further monitoring required.		
Malathion	121-75-5	---	Previously evaluated, no further monitoring required.		
Methoxychlor	72-43-5	---	Previously evaluated, no further monitoring required.		
Mirex	2385-85-5	---	Previously evaluated, no further monitoring required.		
Parathion	56-38-2	---	Previously evaluated, no further monitoring required.		
PCB Total [C]	1336-36-3	7.0	Previously evaluated, no further monitoring required.		

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Toxaphene [C]	8001-35-2	5.0	Previously evaluated, no further monitoring required.		
Tributyltin	60-10-5	---	Previously evaluated, no further monitoring required.	---	---
BASE NEUTRAL EXTRACTABLES					
Acenaphthene	83-32-9	10.0	Previously evaluated, no further monitoring required.		
Anthracene	120-12-7	10.0	Previously evaluated, no further monitoring required.		
Benzidine [C]	92-87-5	---	Previously evaluated, no further monitoring required.		
Benzo (a) anthracene [C]	56-55-3	10.0	Previously evaluated, no further monitoring required.		
Benzo (b) fluoranthene [C]	205-99-2	10.0	Previously evaluated, no further monitoring required.		
Benzo (k) fluoranthene [C]	207-08-9	10.0	Previously evaluated, no further monitoring required.		
Benzo (a) pyrene [C]	50-32-8	10.0	Previously evaluated, no further monitoring required.		
Bis 2-Chloroethyl Ether [C]	111-44-4	---	Previously evaluated, no further monitoring required.		
Bis 2-Chloroisopropyl Ether	108-60-1	---	Previously evaluated, no further monitoring required.		
Bis-2-Ethylhexyl Phthalate [C]	117-81-7	10.0	Previously evaluated, no further monitoring required.		
Butyl benzyl phthalate	85-68-7	10.0	Previously evaluated, no further monitoring required.		
2-Chloronaphthalene	91-58-7	---	Previously evaluated, no further monitoring required.		
Chrysene [C]	218-01-9	10.0	Previously evaluated, no further monitoring required.		
Dibenz(a,h)anthracene [C]	53-70-3	20.0	Previously evaluated, no further monitoring required.		
1,2-Dichlorobenzene	95-50-1	10.0	Previously evaluated, no further monitoring required.		
1,3-Dichlorobenzene	541-73-1	10.0	Previously evaluated, no further monitoring required.		
1,4-Dichlorobenzene	106-46-7	10.0	Previously evaluated, no further monitoring required.		
3,3-Dichlorobenzidine [C]	91-94-1	---	Previously evaluated, no further monitoring required.		
Diethyl phthalate	84-66-2	10.0	Previously evaluated, no further monitoring required.		
Dimethyl phthalate	131-11-3	---	Previously evaluated, no further monitoring required.		
Di-n-Butyl Phthalate	84-74-2	10.0	Previously evaluated, no further monitoring required.		
2,4-Dinitrotoluene	121-14-2	10.0	Previously evaluated, no further monitoring required.		
1,2-Diphenylhydrazine [C]	122-66-7	---	Previously evaluated, no further monitoring required.		
Fluoranthene	206-44-0	10.0	Previously evaluated, no further monitoring required.		
Fluorene	86-73-7	10.0	Previously evaluated, no further monitoring required.		
Hexachlorobenzene [C]	118-74-1	---	Previously evaluated, no further monitoring required.		
Hexachlorobutadiene [C]	87-68-3	---	Previously evaluated, no further monitoring required.		
Hexachlorocyclopentadiene	77-47-4	---	Previously evaluated, no further monitoring required.		
Hexachloroethane [C]	67-72-1	---	Previously evaluated, no further monitoring required.		
Indeno(1,2,3-cd)pyrene [C]	193-39-5	20.0	Previously evaluated, no further monitoring required.		
Isophorone [C]	78-59-1	10.0	Previously evaluated, no further monitoring required.		
Nitrobenzene	98-95-3	10.0	Previously evaluated, no further monitoring required.		
N-Nitrosodimethylamine [C]	62-75-9	---	Previously evaluated, no further monitoring required.		
N-Nitrosodi-n-propylamine [C]	621-64-7	---	Previously evaluated, no further monitoring required.		
N-Nitrosodiphenylamine [C]	86-30-6	---	Previously evaluated, no further monitoring required.		
Pyrene	129-00-0	10.0	Previously evaluated, no further monitoring required.		
1,2,4-Trichlorobenzene	120-82-1	10.0	Previously evaluated, no further monitoring required.		
VOLATILES					
Acrolein	107-02-8	---	Previously evaluated, no further monitoring required.		

Parameter	CASRN	QL (ug/L)	Data (ug/L unless noted otherwise)	Source of Data	Data Eval
Acrylonitrile [C]	107-13-1	---	Previously evaluated, no further monitoring required.		
Benzene [C]	71-43-2	10.0	Previously evaluated, no further monitoring required.		
Bromoform [C]	75-25-2	10.0	Previously evaluated, no further monitoring required.		
Carbon Tetrachloride [C]	56-23-5	10.0	Previously evaluated, no further monitoring required.		
Chlorobenzene	108-90-7	50.0	Previously evaluated, no further monitoring required.		
Chlorodibromomethane [C]	124-48-1	10.0	Previously evaluated, no further monitoring required.		
Chloroform	67-66-3	10.0	Previously evaluated, no further monitoring required.		
Dichlorobromomethane [C]	75-27-4	10.0	Previously evaluated, no further monitoring required.		
1,2-Dichloroethane [C]	107-06-2	10.0	Previously evaluated, no further monitoring required.		
1,1-Dichloroethylene	75-35-4	10.0	Previously evaluated, no further monitoring required.		
1,2-trans-dichloroethylene	156-60-5	---	Previously evaluated, no further monitoring required.		
1,2-Dichloropropane [C]	78-87-5	---	Previously evaluated, no further monitoring required.		
1,3-Dichloropropene [C]	542-75-6	---	Previously evaluated, no further monitoring required.		
Ethylbenzene	100-41-4	10.0	Previously evaluated, no further monitoring required.		
Methyl Bromide	74-83-9	---	Previously evaluated, no further monitoring required.		
Methylene Chloride [C]	75-09-2	20.0	Previously evaluated, no further monitoring required.		
1,1,2,2-Tetrachloroethane [C]	79-34-5	---	Previously evaluated, no further monitoring required.		
Tetrachloroethylene	127-18-4	10.0	Previously evaluated, no further monitoring required.		
Toluene	10-88-3	10.0	Previously evaluated, no further monitoring required.		
1,1,2-Trichloroethane [C]	79-00-5	---	Previously evaluated, no further monitoring required.		
Trichloroethylene [C]	79-01-6	10.0	Previously evaluated, no further monitoring required.		
Vinyl Chloride [C]	75-01-4	10.0	Previously evaluated, no further monitoring required.		
ACID EXTRACTABLES					
2-Chlorophenol	95-57-8	10.0	Previously evaluated, no further monitoring required.		
2,4-Dichlorophenol	120-83-2	10.0	Previously evaluated, no further monitoring required.		
2,4-Dimethylphenol	105-67-9	10.0	Previously evaluated, no further monitoring required.		
2,4-Dinitrophenol	51-28-5	---	Previously evaluated, no further monitoring required.		
2-Methyl-4,6-Dinitrophenol	534-52-1	---	Previously evaluated, no further monitoring required.		
Nonylphenol	104-40-51	---	**NEW REQUIREMENT. Needs to be sampled.**	---	---
Pentachlorophenol [C]	87-86-5	50.0	Previously evaluated, no further monitoring required.		
Phenol	108-95-2	10.0	Previously evaluated, no further monitoring required.		
2,4,6-Trichlorophenol [C]	88-06-2	10.0	Previously evaluated, no further monitoring required.		
MISCELLANEOUS					
Ammonia-N (mg/L) (Annual)	766-41-7	0.2 mg/L	Default = 9 mg/L	a	C.1
TRC (mg/L)	7782-50-5	0.1 mg/L	Default = 20 mg/L	a	C.2
Cyanide, Free	57-12-5	10.0	Previously evaluated, no further monitoring required.		
Hydrogen Sulfide	7783-06-4	---	Previously evaluated, no further monitoring required.		
Hardness (mg/L as $CaCO_3$)	471-34-1	---	Previously evaluated, no further monitoring required.		

The **superscript "C"** following the parameter name indicates that the substance is a known or suspected carcinogen; human health criteria at risk level 10^{-5}.

CASRN = Chemical Abstract Service Registry Number for each parameter is referenced in the current Water Quality Standards. A unique numeric identifier designating only one substance. The Chemical Abstract Service is a division of the American Chemical Society.

"Source of Data" codes:
a = default effluent concentration
b = data from permittee monitoring

"Data Evaluation" codes:
See section titled PROTOCOL FOR THE EVALUATION OF EFFLUENT TOXIC POLLUTANTS for an explanation of the code used.

APPENDIX C

RATIONALE FOR WHOLE EFFLUENT TOXICITY (WET) REQUIREMENTS

Applicability of TMP: The applicability criteria for a facility to perform toxicity testing is contained in the Departments Guidance Memo No. 00-2012, Toxics Management Program Implementation Guidance, 08/24/00, Part IV. Toxicity testing requirements apply to this facility due to the fact that it has a pretreatment program.

Summary of Toxicity Testing: This facility has never conducted WET monitoring, so no data are available.

Calculation of Wasteload Allocations (WLAs): The design capacity of the wastewater treatment facility is 0.175 MGD. Acute and chronic WLAs were generated from the Department's WETLim10.xls spreadsheet by entering the design flow, stream flows, and stream mix percentages for the respective stream flows (See Table 1):

Dilution Series:
The dilution series that is being recommended for the acute whole effluent toxicity monitoring is the standard 0.5 dilution series. The dilution series that is being recommended for the chronic whole effluent toxicity monitoring is 100%, 20%, 4%, 0.8%, 0.2% (Table 2).

Stat.exe Limit Evaluation:
The WLAs will be used in the Department's Stat.exe program in order to perform a statistical evaluation of the acute and chronic test results expressed as Toxicity Units (TUs). The toxicity data are analyzed separately by species and test type (acute or chronic).

Midpoint Check Stat.exe Evaluation:
The midpoint of the chronic dilution series is 4%, equivalent to a TUc of 25.0. The midpoint of the dilution series is derived from the highest anticipated mean of the data (expressed as Chronic Toxicity Unit (TU_c)) that will not trigger a limit in the Department's Stat.exe program. The midpoint of the chronic test dilution series was evaluated using Stat.exe to verify that limits would not be inappropriately triggered (Table 3). Since no limit was triggered by the midpoint, the recommended dilution series can be used without the need for adjustment.

Both species (*Ceriodaphnia dubia* and *Pimephales promelas*) are to be used for the WET testing. The frequency of testing will be quarterly for the first year, then annually thereafter.

Peer Reviewer: BWC 07.20.11

Table 1
WETLim10.xls Spreadsheet

Spreadsheet for determination of WET test endpoints or WET limits

	Excel 97			Acute Endpoint/Permit Limit			Use as LC_{50} in Special Condition, as TUa on DMR						
	Revision Date: 01/10/05												
	File: WETLIM10.xls			ACUTE	6.29742871	TUa	LC_{50} =	16	% Use as	6.25	TUa		
	(MIX.EXE required also)												
				ACUTE WLAa		11.34	Note: Inform the permittee that if the mean of the data exceeds						
							this TUa:	1.76940979	a limit may result using WLA.EXE				
				Chronic Endpoint/Permit Limit			Use as NOEC in Special Condition, as TUc on DMR						
				CHRONIC	62.9742871	TU_c	NOEC =	2	% Use as	50.00	TU_c		
				BOTH*	113.400003	TU_c	NOEC =	1	% Use as	100.00	TU_c		
	Enter data in the cells with blue type:			AML	62.9742871	TU_c	NOEC =	2	% Use as	50.00	TU_c		
	Entry Date:	07/18/11		ACUTE WLAa,c		113.4		Note: Inform the permittee that if the mean					
	Facility Name:	Edinburg STP		CHRONIC WLAc		43.057143		of the data exceeds this TUc:			25.878948		
	VPDES Number:	VA0020508		* Both means acute expressed as chronic				a limit may result using WLA.EXE					
	Outfall Number:	001											
				% Flow to be used from MIX.EXE				Difuser /modeling study?					
	Plant Flow:	0.175	MGD					Enter Y/N	N				
	Acute 1Q10:	6.44	MGD	100	%			Acute	1	:1			
	Chronic 7Q10:	7.36	MGD	100	%			Chronic	1	:1			
	Are data available to calculate CV? (Y/N)			N	(Minimum of 10 data points, same species, needed)					Go to Page 2			
	Are data available to calculate ACR? (Y/N)			N	(NOEC<LC50, do not use greater/less than data)					Go to Page 3			
	IWC_a	2.645502646	%	Plant flow/plant flow + 1Q10			NOTE: If the IWCa is >33%, specify the						
	IWC_c	2.322495023	%	Plant flow/plant flow + 7Q10			NOAEC = 100% test/endpoint for use						
	Dilution, acute	37.8		100/IWCa									
	Dilution, chronic	43.05714286		100/IWCc									
	WLA_a	11.34		Instream criterion (0.3 TUa) X's Dilution, acute									
	WLA_c	43.05714286		Instream criterion (1.0 TUc) X's Dilution, chronic									
	$WLA_{a,c}$	113.4		ACR X's WLA_a - converts acute WLA to chronic units									
	ACR -acute/chronic ratio	10		LC50/NOEC (Default is 10 - if data are available, use tables Page 3)									
	CV-Coefficient of variatio	0.6		Default of 0.6 - if data are available, use tables Page 2)									
	Constants eA	0.4109447		Default = 0.41									
	eB	0.6010373		Default = 0.60									
	eC	2.4334175		Default = 2.43									
	eD	2.4334175		Default = 2.43 (1 samp)	No. of sample	1	**The Maximum Daily Limit is calculated from the lowest						
							LTA, X's eC. The LTAa,c and MDL using it are driven by the ACR.						
	$LTA_{a,c}$	46.60112898		WLAa,c X's eA									
	LTA_c	25.87894889		WLAc X's eB							Rounded NOEC's		%
	MDL** with $LTA_{a,c}$	113.4000028	TU_c	NOEC =	0.881834	(Protects from acute/chronic toxicity)					NOEC =	1	%
	MDL** with LTA_c	62.97428711	TU_c	NOEC =	1.587950	(Protects from chronic toxicity)					NOEC =	2	%
	AML with lowest LTA	62.97428711	TU_c	NOEC =	1.587950	Lowest LTA X's eD					NOEC =	2	
	IF ONLY ACUTE ENDPOINT/LIMIT IS NEEDED, CONVERT MDL FROM TU_c to TU_a												
											Rounded LC50's		%
	MDL with $LTA_{a,c}$	11.34000028	TU_a	LC50 =	8.818342	%					LC50 =	9	%
	MDL with LTA_c	6.297428711	TU_a	LC50 =	15.879497	%					LC50 =	16	

Table 2
Dilution Series Recommended for Chronic Toxicity Monitoring

ADJUSTED DILUTION SERIES TO RECOMMEND				
Table 2. - 0.175 MGD Flow Tier	Monitoring		Limit	
	% Effluent	TUc	% Effluent	TUc
Dilution series based on data mean	4	25.880000		
Dilution series to use for limit			2	50.00
Dilution factor to recommend:	0.2		0.141421356	
Dilution series to recommend:	100.0	1.00	100.0	1.00
	20.0	5.00	14.1	7.07
	4.0	25.00	2.0	50.00
	0.8	125.00	0.3	353.55
	0.2	625.00	0.0	2500.00
Extra dilutions if needed	0.03	3125.00	0.01	17677.67
	0.01	15625.00	0.00	125000.00

Table 3
Stat.exe Results

Facility = Edinburg STP
Chemical = WET, TUc Midpoint Check
Chronic averaging period = 4
WLAa = 113.4
WLAc = 43.057143
Q.L. = 1.0
# samples/mo. = 1
# samples/wk. = 1

Summary of Statistics:

observations = 1
Expected Value = 25
Variance = 225
C.V. = 0.6
97th percentile daily values = 60.8354
97th percentile 4 day average = 41.5947
97th percentile 30 day average= 30.1513
< Q.L. = 0
Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are: 25

APPENDIX D

PERMIT CHANGES AND BASES FOR SPECIAL CONDITIONS

Tabulated below are the sections of the permit, with any changes and the reasons for the changes identified. Also provided is the basis for each of the permit special conditions.

Cover Page	• Content and format as prescribed by the VPDES Permit Manual.
Part I.A.1.	**Effluent Limitations and Monitoring Requirements:** Bases for effluent limits provided in previous pages of this fact sheet. Monitoring requirements as prescribed by the VPDES Permit Manual. *Updates Part I.A.1. of the previous permit with the following:* • Monitoring and a limit for E. coli were added. • Monitoring for Chlordane was added. • A note regarding the 3 Days/Week and 1/3 Months monitoring frequencies were added. • The flow footnote was revised to include the reference to Part I.F.1. ('95% Capacity Reopener')
Part I.B.	**Additional Total Residual Chlorine (TRC) Effluent Limitations and Monitoring Requirements:** *Updates Part I.B. of the previous permit.* Required by Sewage Collection and Treatment (SCAT) Regulations and 9 VAC 25-260-170, Bacteria; other waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.
Part I.C.	**Effluent Limitations and Monitoring Requirements – Additional Instructions :** *Updates Part I.C. of the previous permit.* QLs for TKN, TP, Orthophosphate, and Nitrate-Nitrite were deleted. Paragraph added regarding significant digits. Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.
Part I.D.	**Pretreatment Program Requirements:** *Updates Part I.D. of the previous permit* . VPDES Permit Regulation, 9 VAC 25-31-730 through 900, and 40 CFR part 403 require certain existing and new sources of pollution to meet specified regulations.
Part I.E.	**Toxics Management Program Requirements:** *New Requirement.* VPDES Permit Regulation, 9 VAC 25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.
Part I.F.1.	**95% Capacity Reopener:** *Identical to Part I.E.1. of the previous permit.* Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 4 for certain permits.
Part I.F.2.	**Indirect Dischargers:** *Identical to Part I.E.2. of the previous permit* . Required by VPDES Permit Regulation, 9 VAC 25-31-200 B 1 for all STPs that receive waste from someone other than the owner of the treatment works.
Part I.F.3.	**Materials Handling/Storage:** *Identical to Part I.E.3. of the previous permit.* 9 VAC 25-31-280.B.2. requires that the types and quantities of "wastes, fluids, or pollutants which are … treated, stored, etc." be addressed for all permitted facilities.

Part I.F.4. **O&M Manual Requirement:** *Updates Part I.E.4. of the previous permit.* Required by Code of Virginia 62.1-44.19, SCAT Regulations 9 VAC 25-790, and VPDES Permit Regulation 9 VAC 25-31-190 E for all STPs. Added requirement to describe procedures for documenting compliance with the permit requirement that there shall be no discharge of floating solids or visible foam in other than trace amounts.

Part I.F.5. **CTC/CTO Requirement:** *Identical to Part I.E.5. of the previous permit.* Required by Code of Virginia 62.1-44.19, SCAT Regulations 9 VAC 25-790, and VPDES Permit Regulation 9 VAC 25-31-190 E for all STPs.

Part I.F.6. **SMP Requirement:** *Identical to Part I.E.7. of the previous permit.* VPDES Permit Regulation 9 VAC 25-31-100 J, 220 B 2, and 420 through 720, and 40 CFR Part 503 require all STPs to submit information on their sludge use and disposal practices and to meet specified standards for sludge use and disposal. Technical requirements are derived from the Virginia Pollution Abatement Permit Regulation (9 VAC 25-32-10 *et seq.*)

Part I.F.7. **Licensed Operator Requirement:** *Identical to Part I.E.8. of the previous permit* . The VPDES Permit Regulation 9 VAC 25-31-200 C, the Code of Virginia 54.1-2300 et seq., and Rules and Regulations for Waterworks and Wastewater Works Operators 18 VAC 160-20-10 et seq., require licensure of operators. A class III license is indicated for this facility.

Part I.F.8. **Reliability Class:** *Identical to Part I.E.9. of the previous permit.* Required by SCAT Regulations 9 VAC 25-790. Class II status was assigned to this facility.

Part I.F.9. **Water Quality Criteria Monitoring:** *Updates Part I.E.10. of the previous permit.* State Water Control Law at 62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to analyze the facility's effluent for the substances noted in Attachment A of this VPDES permit.

Part I.F.10. **Treatment Works Closure Plan:** *Identical to Part I.E.11. of the previous permit.* Required for all STPs per the State Water Control Law at 62.1-44.18.C. and 62.1-44.15:1.1., and the SCAT Regulations at 9 VAC 25-790-450.E. and 9 VAC 25-790-120.E.3.

Part I.F.11. **Reopeners:**

a. *Updates Part I.E.13. of the previous permit:* Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The reopener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

b. *New Requirement:* 9 VAC 25-40-70 A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.

c. *Updates Part I.E.12. of the previous permit*: 9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

d. *Updates Part I.E.6. of the previous permit:* Required by the VPDES Permit Regulation, 9 VAC 25-31-220.C, for all permits issued to STPs.

e. *New Requirement:* 9 VAC 25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of the water quality criteria.

Part II CONDITIONS APPLICABLE TO ALL VPDES PERMITS. VPDES Permit Regulation 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

Deletions: None